

# Emerging Resource Protection Issues at Channel Islands National Marine Sanctuary

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This document provides brief information and links about a variety of emerging resource protection issues facing Channel Islands National Marine Sanctuary. Sanctuary staff seek to address resource protection issues using an ecosystem-based management approach, along with help from partner agencies, supporting organizations, and the Sanctuary Advisory Council. We work to identify, research, and assess the significance of threats, not only for current issues, such as [whale ship strikes](#) and [vessel pollution](#), but also to prepare for and deal with emerging issues.

Emerging issues are those that, based on current understanding, have had a relatively small or possibly no impact upon the Sanctuary to date, but which could become a concern in the future. Some emerging issues may also be known to cause problems in other coastal regions but have yet to appear in the Sanctuary. Several known emerging issues facing the Sanctuary are listed below, although the list is not exhaustive. Through timely and proper assessment of these issues, Sanctuary staff, working closely with resource protection partners, will strive to take appropriate actions to reduce the potential for future negative impacts on Sanctuary resources, and to maintain appropriate public use and enjoyment of the Sanctuary.

## **Aquaculture**

The broad term “aquaculture” refers to the breeding, rearing, and harvesting of plants and animals in all types of water environments, including ponds, rivers, lakes, and the ocean. Aquaculture operations have the potential to impact marine resources in several ways. For example, aquaculture operations could disturb the seabed, impact water quality, release disease pathogens and chemicals, and introduce exotic species. While there are currently no aquaculture facilities operating within Sanctuary waters, there are some facilities operating in nearby areas. With recent interest in aquaculture development, future proposals could expand to include open ocean-based facilities, with potential to impact Sanctuary resources. To prepare for this, the Sanctuary Advisory Council’s Conservation Working Group developed a comprehensive report on open ocean aquaculture that includes recommendations for staff’s consideration should aquaculture projects be proposed near CINMS.

### Links:

- Sanctuary Advisory Council report, “*Open Ocean Aquaculture in the Santa Barbara Channel: An emerging challenge for the Channel Islands National Marine Sanctuary*” (July 2007): <http://channelislands.noaa.gov/sac/pdf/7-27-07.pdf>
- NOAA Aquaculture Program: <http://aquaculture.noaa.gov/about/welcome.html>
- California Department of Fish and Wildlife aquaculture permitting information: <http://www.dfg.ca.gov/fish/Administration/Permits/Aquaculture/index.asp>

## **Artificial reefs**

Across the globe, there has been increasing interest in the use of artificial reefs to enhance marine resources for commercial, recreational, and conservation purposes. Creating an artificial reef requires that materials be placed in the marine environment that would not exist there under natural circumstances. In order to prevent disposal of harmful materials in Sanctuary waters, or adverse effects to natural systems, CINMS regulations prohibit constructing or placing any structure, material, or other matter on or in the submerged lands of

the sanctuary that would be associated with installation of an artificial reef without a [permit](#) issued by the Office of National Marine Sanctuaries. Artificial reefs have been the subject of presentations and discussions by the Sanctuary Advisory Council (see notes at <http://channelislands.noaa.gov/sac/pdf/final1-25-08.pdf>). There are many views on the utility of artificial reefs, both within and outside of national marine sanctuaries. There has also been interest in potentially converting decommissioned oil platforms to artificial reefs, rather than fully removing them. Some of these platforms lie just a few miles outside Sanctuary borders (none are located within the Sanctuary), and as such this is an issue Sanctuary staff are watching as it develops.

Links:

- NOAA Office of National Marine Sanctuaries: Policy Statement on Artificial Reef Permitting Guidelines: <http://sanctuaries.noaa.gov/library/national/arpolicy071503.pdf>
- NOAA National Artificial Reef Plan: Guidelines for Siting, Construction, Development, and Assessment of Artificial Reefs (Feb. 2007): <http://www.nmfs.noaa.gov/sfa/PartnershipsCommunications/NARPwCover3.pdf>
- California Department of Fish and Wildlife: Guide to the Artificial Reefs of Southern California: <http://www.dfg.ca.gov/marine/artificialreefs.asp>
- California Ocean Science Trust: Evaluating Alternatives for Decommissioning California's Offshore Oil and Gas Platforms": [http://calost.org/pdf/science-initiatives/oil-and-gas/OilandGas\\_DecommissioningReport\(NoAppen\).pdf](http://calost.org/pdf/science-initiatives/oil-and-gas/OilandGas_DecommissioningReport(NoAppen).pdf)

### ***Energy Development***

Sanctuary staff, with assistance from the Sanctuary Advisory Council, work to identify, assess, and address energy project issues as they arise near the Sanctuary. Staff work with relevant permitting authorities to review and address projects that may have the potential to destroy, injure, or cause the loss of Sanctuary resources or qualities.

The Santa Barbara Channel has been a center of energy development since oil was first successfully developed in the late 1800s. There are currently 20 oil platforms in the Santa Barbara Channel. No oil rigs are located within the Sanctuary, but a few lease units do pre-date Sanctuary designation and slightly overlap the CINMS eastern boundary (see link to map below). Sanctuary regulations, with prohibitions on alteration of the submerged lands and any oil and gas activities, essentially prohibit energy development projects within CINMS. To prepare for the possibility of a spill related to existing oil and gas operations, as well from the transport of oil and other hazardous products by ship, an Emergency Response and Enforcement Action Plan was developed as part of the CINMS Final Management Plan.

Offshore development of alternative energy, such as from wind or wave sources, represents another emerging issue for the Sanctuary. Although no such projects have yet been proposed within Sanctuary boundaries, staff and the Sanctuary Advisory Council are tracking new developments within the region. The Conservation Working Group of the Sanctuary Advisory Council began researching the issue in 2009, and plans to develop a report and recommendations.

Some proposals have been made within the Santa Barbara Channel for the development of offshore terminals to receive liquid natural gas from incoming ships. Although such proposals have not called for facilities to be located within the Sanctuary, the proximity, scale and nature of the proposed activities are of interest to Sanctuary staff given the potential for adverse effects to Sanctuary resources and public uses.

Links:

- CINMS Regulations (note §922.72(a)(1) and §922.72(a)(4) as could relate to energy projects: [http://channelislands.noaa.gov/drop\\_down/reg.html](http://channelislands.noaa.gov/drop_down/reg.html)
- Santa Barbara County Energy Division, Offshore Oil and Gas Facilities Map: [http://www.sbcountyplanning.org/energy/who/oil\\_gasMap.asp](http://www.sbcountyplanning.org/energy/who/oil_gasMap.asp)
- Federal Energy Regulatory Commission: <http://www.ferc.gov/>
- Bureau of Ocean Energy Management, Pacific Region, Renewable Energy Program: <http://www.boem.gov/Pacific-Region/>
- Emergency Response and Enforcement Action Plan in CINMS Final Management Plan: <http://channelislands.noaa.gov/manplan/pdf/FMP01-09-Sec.III-EE.pdf>

### ***Ocean Acidification and other Climate Change Effects***

Climate change is an issue of growing concern on global and local scales that has significant implications for coastal and marine communities and ecosystems. The Office of National Marine Sanctuaries has been working with NOAA's Climate Program Office to assess the extent of climate change impacts on national marine sanctuary resources and how NOAA and the Sanctuary system might help mitigate and/or adapt to impacts. This coordination will continue as NOAA develops a National Climate Service. On a local scale, Sanctuary staff are participating in a NOAA "Climate Stewards Education Program", and continue to examine ways to "green" Sanctuary facilities and operations.

Ocean acidification is a specific climate change impact of concern. Research findings indicate the basic chemistry of the Earth's ocean is changing because of excess carbon dioxide in the atmosphere from human-related activities, and scientists believe changes in seawater acidity could harm many calcifying organisms such as corals, mussels, algae and plankton that support marine biodiversity. In 2008 the Sanctuary Advisory Council developed a comprehensive report on ocean acidification. The report offers a set of recommendations for CINMS staff, resource managers and stakeholders to: improve scientific understanding of ocean acidification in the Channel Islands region; form partnerships to better leverage existing research, management and pollution control assets; and identify actions that CINMS managers and stakeholders can take to help reduce ocean acidification threats to CINMS resources and qualities. Following adoption of the report, all thirteen other Sanctuary Advisory Councils passed either resolutions of support for the report's recommendations, or similar advice. The Sanctuary Advisory Council's influential work on ocean acidification was made possible by their Conservation Working Group, who prepared the report and in 2009 received a Partner of the Year award from NOAA's Office of National Marine Sanctuaries. The Advisory Council's Sanctuary Education Team began working on ocean acidification education and outreach strategies in late 2009.

#### **Links:**

- Sanctuary Advisory Council report on ocean acidification: <http://channelislands.noaa.gov/sac/pdf/cwg-oar.pdf>
- Information about the Sanctuary Advisory Council's Conservation Working Group and Sanctuary Education Team: <http://channelislands.noaa.gov/sac/wgsub.html>
- Actions taken on ocean acidification by other Sanctuary Advisory Councils: [http://sanctuaries.noaa.gov/management/ac/council\\_actions.html](http://sanctuaries.noaa.gov/management/ac/council_actions.html)
- NOAA Pacific Marine Environmental Laboratory, Carbon Dioxide Program: <http://www.pmel.noaa.gov/co2/>
- NOAA Climate Service web portal (a single point-of-entry for NOAA's climate information, data, products and services): <http://www.climate.gov/>

### ***Eelgrass Damage***

Eelgrass is a flowering marine plant that provides a highly productive and complex microhabitat supporting a wide variety of marine species. Eelgrass beds are also known to be ecologically important for primary production, nutrient cycling, and substrate stabilization and are designated by the National Marine Fisheries Service as Essential Fish Habitat. Eelgrass beds, which are extremely vulnerable to habitat disturbances, have been found at 10 locations within the Sanctuary. To help protect eelgrass beds from cumulative scouring damage, the Channel Islands National Park installed sub-surface buoy floats on mooring chains at Santa Cruz Island. With the benefit of eelgrass restoration and mapping work done by the non-profit organization Santa Barbara Channelkeeper, CINMS will continue to work with the Park, boaters and other partners to raise awareness about the location and sensitivity of eelgrass beds, and what can be done to protect this important habitat.

Links:

- Santa Barbara Channelkeeper: <http://www.sbck.org/>
- Santa Barbara Channelkeeper brochure on “Eelgrass meadows at the Channel Islands”: <http://www.sbck.org/pdf/SBCK%20eelgrass%20brochure.pdf>
- NOAA Southwest Region information on Essential Fish Habitat: <http://swr.nmfs.noaa.gov/efh.htm>

### ***Human-induced Acoustic Impacts***

Introduced sound in the ocean comes from a variety of human sources, and may have potential negative impacts on individual marine animals, and in turn upon local populations, species and ecosystems. In 2004, the Sanctuary Advisory Council approved a comprehensive report on noise, and adopted a set of recommendations on how to address noise impacts. The report was prepared by the Council’s Conservation Working Group. Staff with CINMS and the Office of National Marine Sanctuaries continues to work with partners from NOAA Fisheries and academia to gain a better understanding of the Sanctuary’s ambient acoustic environment, of potential noise impacts from shipping traffic, sonar, and other sources, and of strategies to mitigate such impacts.

Links:

- Sanctuary Advisory Council report “*Anthropogenic Noise and the Channel Islands National Marine Sanctuary: How Noise Affects Sanctuary Resources, and What We Can Do About It*”: <http://channelislands.noaa.gov/sac/pdf/7-12-04.pdf>
- Policy Guidance document on Human-Induced Acoustic Impacts on Marine Life, from NOAA’s Office of National Marine Sanctuaries: [http://sanctuaries.noaa.gov/management/pdfs/nmsp\\_acousticpolicy.pdf](http://sanctuaries.noaa.gov/management/pdfs/nmsp_acousticpolicy.pdf)

### ***Introduced Species***

Introduced species are those that are non-native or genetically altered from those that occur naturally in a region. According to the International Maritime Organization, introduced species are considered one of the four greatest threats to the world’s oceans and can reduce the viability of native marine species through increased competition, disease transmission, and alteration of habitat. There have been relatively few introduced species documented within the Sanctuary, but a recent exception is *Sargassum horneri*, a brown algae that was discovered in 2009 near Anacapa Island. CINMS staff are participating in a working group that has formed to help study and address the situation with *Sargassum horneri*. Staff also work with others to help eradicate invasive kelp from Santa Barbara Harbor.

Links:

- Policy Guidance on Invasive Species Impacts on Marine Life from the NOAA Office of National Marine Sanctuaries:  
[http://sanctuaries.noaa.gov/management/pdfs/invasive\\_species.pdf](http://sanctuaries.noaa.gov/management/pdfs/invasive_species.pdf)
- California Department of Fish and Wildlife: Marine Invasive Species Monitoring Program:  
[http://www.dfg.ca.gov/ospr/Science/invasive\\_species.aspx](http://www.dfg.ca.gov/ospr/Science/invasive_species.aspx)

### ***Wildlife Disturbance Caused By Artificial Lighting***

Artificial lighting can attract, disturb, confuse and disorient marine wildlife, such as seabirds. In 1999 the Sanctuary joined with other state and federal resource management agencies to help address concerns about the possible negative impact of squid fishery vessel lights on the breeding success of endangered California brown pelicans nesting at Anacapa Island. The California Fish and Game Commission subsequently established requirements for light shielding and wattage limits. In 2002, to help protect the *Xantus's murrelet* (a small seabird listed as “threatened” under the California Endangered Species Act and a “candidate” for listing under the federal Endangered Species Act) the California Fish and Game Commission established seasonal rules limiting the use of artificial lighting from vessels within one nautical mile of Anacapa and Santa Barbara islands. The Sanctuary will continue to watch for possible light impacts within the Sanctuary, and will work collaboratively to support additional research, monitoring or management actions as needed.

#### Links:

- California Department of Fish and Wildlife: Final Market Squid Fishery Management Plan: <http://www.dfg.ca.gov/marine/msfmp/index.asp>